



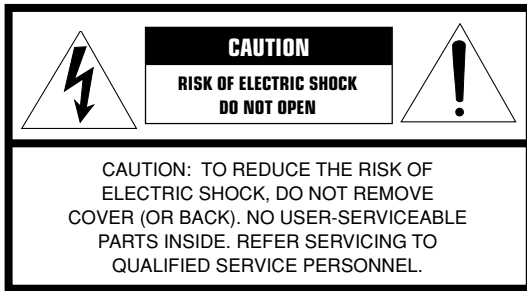
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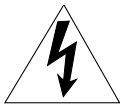
*Natural Sound AV Receiver*

OWNER'S MANUAL

# SAFETY INSTRUCTIONS



## • Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

- 1 Read Instructions – All the safety and operating instructions should be read before the unit is operated.
- 2 Retain Instructions – The safety and operating instructions should be retained for future reference.
- 3 Heed Warnings – All warnings on the unit and in the operating instructions should be adhered to.
- 4 Follow Instructions – All operating and other instructions should be followed.
- 5 Water and Moisture – The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
- 6 Carts and Stands – The unit should be used only with a cart or stand that is recommended by the manufacturer.
- 6A A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.
- 7 Wall or Ceiling Mounting – The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.



- 8 Ventilation – The unit should be situated so that its location or position does not interfere with its proper ventilation. For example, the unit should not be situated on a bed, sofa, rug, or similar surface, that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9 Heat – The unit should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
- 10 Power Sources – The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.
- 11 Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.
- 12 Cleaning – The unit should be cleaned only as recommended by the manufacturer.
- 13 Nonuse Periods – The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.
- 14 Object and Liquid Entry – Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the unit.
- 15 Damage Requiring Service – The unit should be serviced by qualified service personnel when:
  - A. The power-supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the unit; or
  - C. The unit has been exposed to rain; or
  - D. The unit does not appear to operate normally or exhibits a marked change in performance; or
  - E. The unit has been dropped, or the cabinet damaged.
- 16 Servicing – The user should not attempt to service the unit beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17 Power Lines – An outdoor antenna should be located away from power lines.
- 18 Grounding or Polarization – Precautions should be taken so that the grounding or polarization is not defeated.

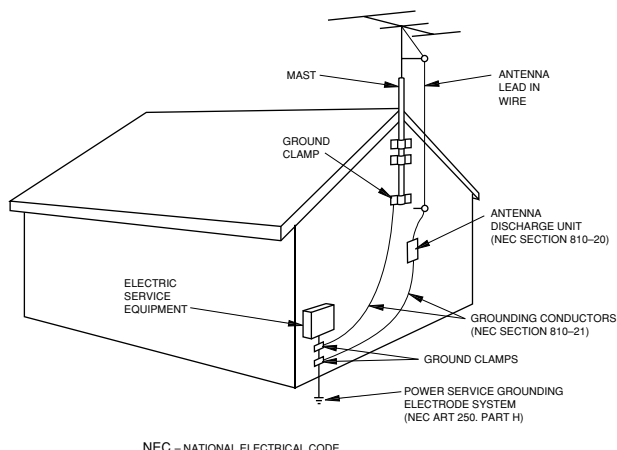
**19 For US customers only:**

**Outdoor Antenna Grounding** – If an outside antenna is connected to this unit, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

**Note to CATV system installer:**

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING

**FCC INFORMATION (for US customers only)****1. IMPORTANT NOTICE : DO NOT MODIFY THIS UNIT!**

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

**2. IMPORTANT :** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.**3. NOTE :** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Electronics Corp., U.S.A. 6660 Orangethorpe Ave, Buena Park, CA 90620.

The above statements apply **ONLY** to those products distributed by Yamaha Corporation of America or its subsidiaries.

**We Want You Listening For A Lifetime**

YAMAHA and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion – and, most importantly, without affecting your sensitive hearing.

Since hearing damage from loud sounds is often undetectable until it is too late, YAMAHA and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.



## CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

- 1 To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
- 2 Install this unit in a well ventilated, cool, dry, clean place with at least 30 cm on the top, 20 cm on the right and left, and 10 cm at the back of this unit — away from direct sunlight, heat sources, vibration, dust, moisture, and/or cold.
- 3 Locate this unit away from other electrical appliances, motors, or transformers to avoid humming sounds. To prevent fire or electrical shock, do not place this unit where it may get exposed to rain, water, and/or any type of liquid.
- 4 Do not expose this unit to sudden temperature changes from cold to hot, and do not locate this unit in a environment with high humidity (i.e. a room with a humidifier) to prevent condensation inside this unit, which may cause an electrical shock, fire, damage to this unit, and/or personal injury.
- 5 On the top of this unit, do not place:
  - Other components, as they may cause damage and/or discoloration on the surface of this unit.
  - Buring objects (i.e. candles), as they may cause fire, damage to this unit, and/or personal injury.
  - Containers with liquid in them, as they may cause electrical shock to the user and/or damage to this unit.
- 6 Do not cover this unit with a newspaper, tablecloth, curtain, etc. in order not to obstruct heat radiation. If the temperature inside this unit rises, it may cause fire, damage to this unit, and/or personal injury.
- 7 Do not plug in this unit to a wall outlet until all connections are complete.
- 8 Do not operate this unit upside-down. It may overheat, possibly causing damage.
- 9 Do not use force on switches, knobs and/or cords.
- 10 When disconnecting the power cord from the wall outlet, grasp the plug; do not pull the cord.
- 11 Do not clean this unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
- 12 Only voltage specified on this unit must be used. Using this unit with a higher voltage than specified is dangerous and may cause fire, damage to this unit, and/or personal injury. YAMAHA will not be held responsible for any damage resulting from use of this unit with a voltage other than specified.
- 13 To prevent damage by lightning, disconnect the power cord from the wall outlet during an electrical storm.
- 14 Take care of this unit so that no foreign objects and/or liquid drops inside this unit.
- 15 Do not attempt to modify or fix this unit. Contact qualified YAMAHA service personnel when any service is needed. The cabinet should never be opened for any reasons.
- 16 When not planning to use this unit for long periods of time (i.e. vacation), disconnect the AC power plug from the wall outlet.
- 17 Be sure to read the “TROUBLESHOOTING” section on common operating errors before concluding that this unit is faulty.
- 18 Before moving this unit, press **STANDBY/ON** to set this unit in the standby mode, and disconnect the AC power plug from the wall outlet.
- 19 **VOLTAGE SELECTOR (China and general models only)**  
The **VOLTAGE SELECTOR** on the rear panel of this unit must be set for your local main voltage **BEFORE** plugging into the AC main supply. Voltages are 110/120/220/240 V AC, 50/60 Hz.

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if this unit itself is turned off. This state is called the standby mode. In this state, this unit is designed to consume a very small quantity of power.

### **FREQUENCY STEP switch (China and general models only)**

Because the interstation frequency spacing differs in different areas, set the **FREQUENCY STEP** switch (locating at the rear) according to the frequency spacing in your area.

North, Central and South America: 100 kHz/10 kHz  
Other area: 50 kHz/9 kHz

Before setting this switch, disconnect the AC power plug of this unit from the AC outlet.

### **IMPORTANT**

Please record the serial number of this unit in the space below.

MODEL:

Serial No.:

The serial number is located on the rear of the unit.

Retain this Owner's Manual in a safe place for future reference.

### **FOR CANADIAN CUSTOMERS**

To prevent electric shock, match wide blade of plug to wide slot and fully insert.

This Class B digital apparatus complies with Canadian ICES-003.

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## FEATURES

### Built-in 5-Channel Power Amplifier

- ◆ Minimum RMS Output Power  
(0.04% THD, 20 Hz – 20 kHz)  
Main: 100 W + 100 W (8 Ω)  
Center: 100 W (8 Ω)  
Rear: 100 W + 100 W (8 Ω)
- ◆ Maximum Power (EIAJ)  
(10% THD, 1 kHz)  
[China and general models]  
Main: 140 W + 140 W (8 Ω)  
Center: 140 W (8 Ω)  
Rear: 140 W + 140 W (8 Ω)

### Multi-Mode Digital Sound Field Processing


- ◆ Digital Sound Field Processor (DSP)
- ◆ Dolby Pro Logic Decoder
- ◆ Dolby Digital/Dolby Digital Matrix 6.1 Decoder
- ◆ DTS/DTS ES Decoder
- ◆ CINEMA DSP: Combination of YAMAHA DSP Technology and Dolby Pro Logic, Dolby Digital or DTS
- ◆ Virtual CINEMA DSP
- ◆ SILENT CINEMA DSP

### Sophisticated AM/FM Tuner

- ◆ 40-Station Random Access Preset Tuning
- ◆ Automatic Preset Tuning
- ◆ Preset Station Shifting Capability (Preset Editing)

### Other Features

- ◆ 96-kHz/24-bit D/A Converter
- ◆ “SET MENU” which Provides You with 15 Items for Optimizing This Unit for Your Audio/Video System
- ◆ Test Tone Generator for Easier Speaker Balance Adjustment
- ◆ 6-Channel External Decoder Input for Other Future Formats
- ◆ BASS EXTENSION Button for Reinforcing Bass Response
- ◆ On Screen Display Function Helpful in Controlling This Unit
- ◆ S Video Signal Input/Output Capability
- ◆ Component Video Input/Output Capability
- ◆ Optical and Coaxial Digital Audio Signal Jacks
- ◆ Sleep Timer
- ◆ Remote Control with Preset Manufacturer Codes and “Learning” Capability
- ◆ Custom Installation Facility (U.S.A., Canada and Australia models only)

•  indicates a tip for your operation.

• Some operations can be performed by using either the buttons on the main unit or on the remote control. In cases when the button names differ between the main unit and the remote control, the button name on the remote control is given in parentheses in this manual.



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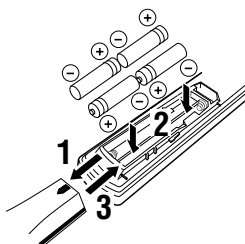
Check your package to make sure it has the following items.

[illegible]

A diagram showing four dry cells connected in series. The positive terminal of one cell is connected to the negative terminal of the next cell, forming a continuous loop. The cells are represented as cylinders with '+' and '-' signs on their terminals.

Diagram illustrating the correct connection of a 4-wire cable to a 4-wire handset. The handset has four buttons labeled 1, 2, 3, and 4. The cable has four wires labeled 1, 2, 3, and 4. The connections are: 1 to 1, 2 to 2, 3 to 3, and 4 to 4.

Insert the batteries in the correct direction by aligning the + and – marks on the batteries with the polarity markings (+ and –) inside the battery compartment.



- Change the batteries periodically.
- Do not use old batteries together with new ones.
- Do not use different types of batteries (such as alkaline and manganese batteries) together. Read the packaging carefully as these different types of batteries may have the same shape and color.

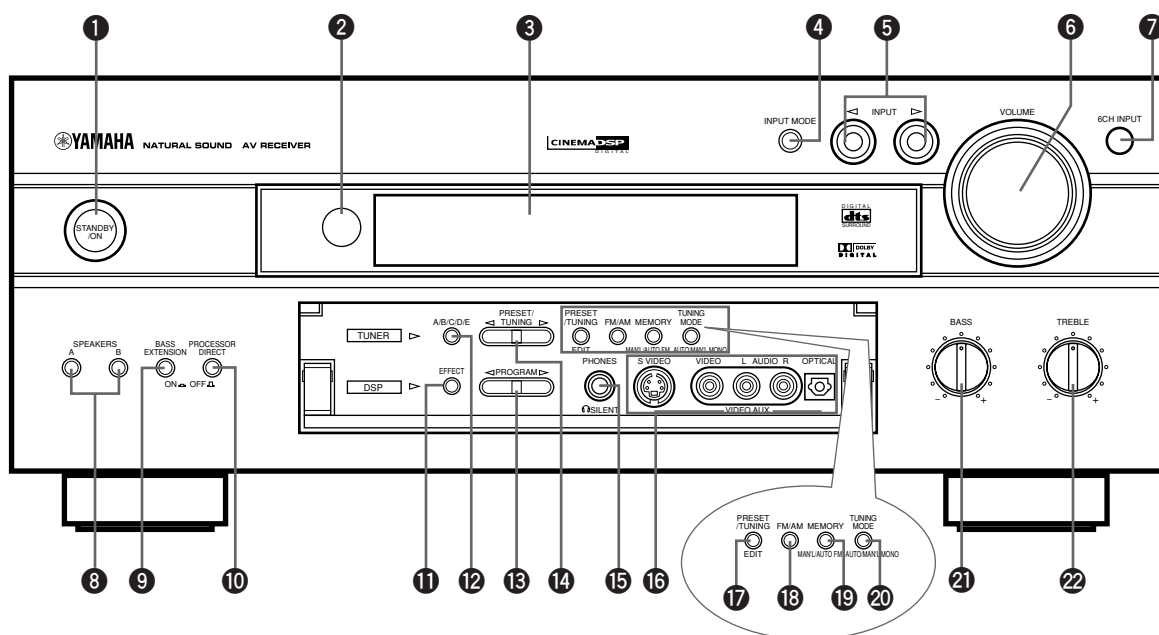
As the batteries lose power, the operating range of the remote control decreases and the indicator does not flash or its light becomes dim. When you notice any of these conditions, change all of the batteries.

If the remote control is without batteries for more than 2 minutes, or if exhausted batteries remain in the remote control, the contents of the memory may be cleared. When the memory is cleared, insert new batteries, set up the manufacturer code and program any acquired functions that may have been cleared.

- If the batteries have leaked, dispose of them immediately. Avoid touching the leaked material or letting it come into contact with clothing, etc. Clean the battery compartment thoroughly before installing new batteries.

# CONTROLS AND FUNCTIONS

## Front Panel



### 1 STANDBY/ON

Turns on and sets this unit in the standby mode. When you turn on this unit, you will hear a click and there will be a 4 to 5-second delay before this unit can reproduce sound.

#### Standby mode

In this mode, this unit consumes a small amount of power to receive infrared-signals from the remote control.

### 2 Remote control sensor

Receives signals from the remote control.

### 3 Front panel display

Shows information about the operational status of this unit (see page 9).

### 4 INPUT MODE

Selects the mode of input for sources that send two or more types of signals to this unit (see page 26).

You cannot control the input mode when you select 6CH INPUT as the input source.

### 5 INPUT $\triangleleft/\triangleright$

Selects the input source (DVD, D-TV/LD, CBL/SAT, VCR 1, VCR 2/DVR, V-AUX, PHONO, CD, TUNER, CD-R, MD/TAPE) you want to listen to or watch.

### 6 VOLUME

Controls the output level of all audio channels. This does not affect the REC OUT level.

### 7 6CH INPUT

Selects the source connected to the 6CH INPUT jacks. The source selected by pressing 6CH INPUT takes priority over the source selected with INPUT  $\triangleleft/\triangleright$  (or the input selector buttons).

### 8 SPEAKERS A/B

Turn on or off the set of main speakers connected to the A and/or B terminals on the rear panel.

### 9 BASS EXTENSION ON/OFF

When pushed in (ON), this feature boosts the bass frequency of the left and right main channels by +6 dB (60 Hz) while maintaining overall tonal balance. This boost is useful if you do not use a subwoofer. However, this boost may not be noticeable if "1B MAIN SP" on the SET MENU is set to SMALL and "1D LFE/BASS OUT" is set to SWFR.

### 10 PROCESSOR DIRECT ON/OFF

When pushed in (ON), BASS, TREBLE, and BASS EXTENSION are bypassed, eliminating any alteration of the original signal.



**11 EFFECT**

Switches the effect speakers (center and rear) on and off. If you turn off the output of these speakers by using EFFECT, all Dolby Digital and DTS audio signals except for the LFE channel are directed to the main left and right channels.

When Dolby Digital or DTS signals are mixed, the left and right main channel signal levels may not match.

**12 A/B/C/D/E**

Selects one of the 5 preset station groups (A to E).

**13 PROGRAM** ◀/▶

Selects the DSP program (see page 28).

**14 PRESET/TUNING** ◀/▶

Selects preset station number 1 to 8 when the colon (:) appears next to the band indication on the front panel display, and selects the tuning frequency when the colon (:) does not appear.

**15 PHONES jack**

Outputs audio signals for private listening with headphones. When you connect headphones, no signals are output to the OUTPUT jacks or to the speakers.

**16 VIDEO AUX jacks**

Inputs audio and video signals from a portable external source such as a game console. To reproduce source signals from these jacks, select V-AUX as the input source.

**17 PRESET/TUNING (EDIT)**

Switches the function of PRESET/TUNING ◀/▶ (the colon (:) turns on or off) between selecting a preset station number and tuning.

This button is also used to exchange the assignment of two preset stations with each other.

**18 FM/AM**

Switches the reception band between FM and AM.

**19 MEMORY (MAN'L/AUTO FM)**

Stores a station in the memory. Hold down this button for more than 3 seconds to start automatic preset tuning.

**20 TUNING MODE (AUTO/MAN'L MONO)**

Switches the tuning mode between automatic and manual. To select the automatic tuning mode, press this button so that the "AUTO" indicator lights up on the front panel display. To select the manual tuning mode, press this button so that the "AUTO" indicator does not light up.

**21 BASS**

Adjusts the low-frequency response for the left and right main channels.

Turn the control to the right to increase or to the left to decrease the low-frequency response.

**22 TREBLE**

Adjusts the high-frequency response for the left and right main channels.

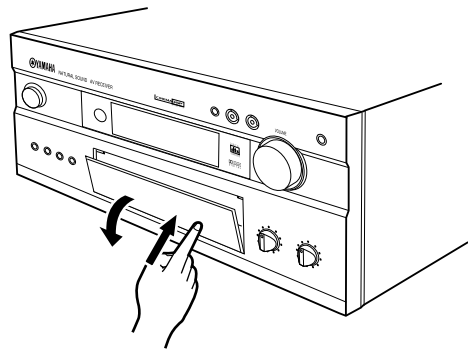
Turn the control to the right to increase or to the left to decrease the high-frequency response.

**Note**

- If you increase or decrease the high-frequency or the low-frequency sound to an extreme level, the tonal quality from the center and rear speakers may not match that of the left and right main speakers.

**■ Opening and closing the front panel door**

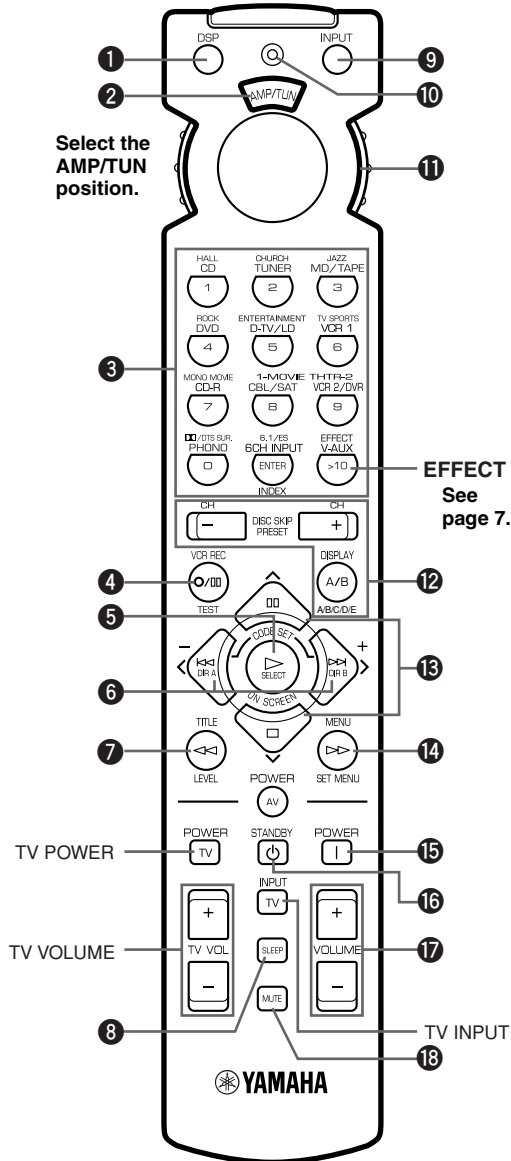
When you are not operating the controls behind the front panel door, close the door.



To open, press gently on the lower part of the panel.

## Remote Control

This section describes the basic operation of this unit with the remote control. First, set the selector dial to the AMP/TUN position. See “REMOTE CONTROL FEATURES” on pages 46 to 53 for full details.



### 1 DSP

Switches the function of the numeric buttons to the DSP program selector (see page 7).

### 2 Indicator window

Shows the name of components which can be controlled.

### 3 Numeric buttons (Input selector buttons)

These buttons select the input source.

See pages 7 and 8 for the numeric buttons.

### 4 TEST

Outputs the test tone.

### 5 ON SCREEN

Selects the on-screen display (OSD) mode for your video monitor.

### 6 </>

Adjust DSP program parameters and SET MENU items.

### 7 LEVEL

Selects the effect speaker channel (center, rear and subwoofer) so you can adjust their output level independently.

### 8 SLEEP

Sets the sleep timer.

### 9 INPUT

Switches the function of the numeric buttons to the input selector (see page 7).

### 10 Indicator

Flashes while the remote control is sending signals.

### 11 Selector dial

Turn this dial to select the position for the component to be controlled. (The proper code must be set up for your component. See “Setting the Manufacture Codes” on page 51.) When the position is selected, the remote control is set to that component operation mode.

### 12 A/B/C/D/E, PRESET-/+

These buttons are used to select a preset station.

A/B/C/D/E: To select one of 5 preset station groups (A to E)

PRESET -/+ : To select a preset station number (1 to 8)

### 13 ^/v

Select DSP program parameters and SET MENU items.

### 14 SET MENU

Enters the SET MENU.

### 15 POWER

Turns on the power of this unit.

### 16 STANDBY

Sets this unit in the standby mode.

**17 VOLUME +/-**

Increases or decreases the volume level.

**18 MUTE**

Mutes the sound. Press again to restore the audio output to the previous volume level.

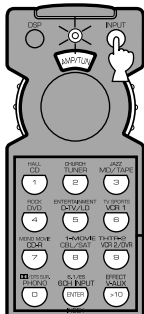
**EFFECT**

Switches the effect speakers (center and rear) on and off in the following cases:

- When the selector dial is set to the DSP/TUN position.
- While the indicator is lit for about 3 seconds after pressing DSP.

## Description of the Numeric Buttons

The numeric buttons function in various ways depending on the position of the selector dial or the combination of other instructions.



Input selector buttons

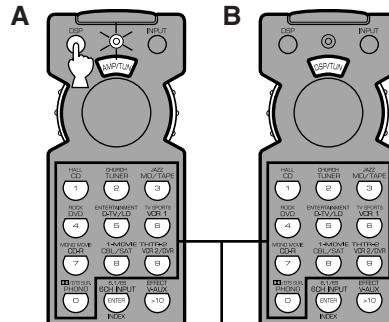
### ■ When selecting an input source

- 1** Press INPUT regardless of the position of the selector dial.

The indicator lights up for about 3 seconds.

- 2** You can select an input source with the numeric buttons while the indicator is lit.

### ■ When selecting a DSP program and turning on or off the effect speakers (center and rear)



DSP program group buttons

**A**

- 1** Press DSP regardless of the position of the selector dial.

The indicator lights up for about 3 seconds.

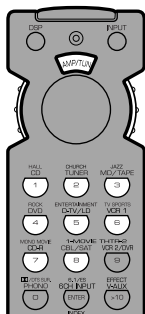
- 2** You can select a DSP program with the numeric buttons, turn on or off the effect speakers (center and rear) by pressing EFFECT and turn on or off the Dolby Digital Matrix 6.1 or DTS ES decoder by pressing 6.1/ES while the indicator is lit.

**B**

- 1** Set the selector dial to the DSP/TUN position.

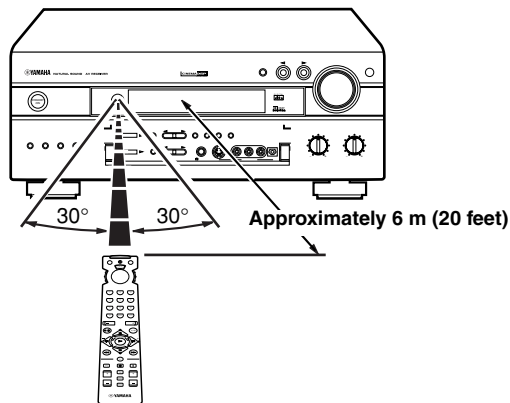
- 2** You can select a DSP program directly with the numeric buttons, turn on or off the effect speakers (center and rear) by pressing EFFECT and turn on or off the Dolby Digital Matrix 6.1 or DTS ES decoder by pressing 6.1/ES.

## ■ When selecting a preset station number



- 1** Set code number “0023” in the AMP/TUN (or DSP/TUN) position.  
See page 51 for setting the code.
- 2** Set the selector dial to the AMP/TUN (or DSP/TUN) position.
- 3** You can select a preset station number directly with the numeric buttons (1 to 8).  
See page 34.

## Using the Remote Control

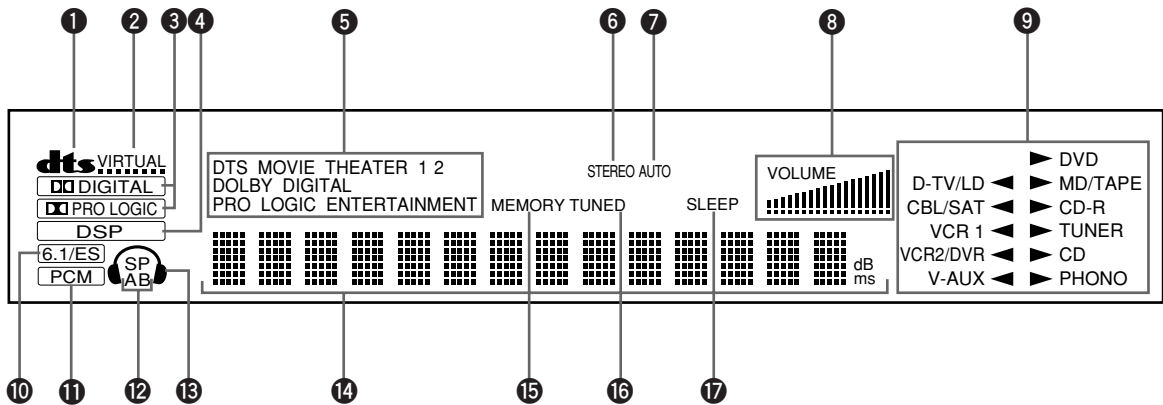


The remote control transmits a directional infrared beam. Be sure to aim the remote control directly at the remote control sensor on the main unit during operation.

## ■ Handling the remote control

- Do not spill water or other liquids on the remote control.
- Do not drop the remote control.
- Do not leave or store the remote control in the following types of conditions:
  - high humidity or temperature such as near a heater, stove or bath;
  - dusty places; or
  - in places subject to extremely low temperatures.

## Front Panel Display



### ① dts indicator

Lights up when the built-in DTS decoder is on.

### ② VIRTUAL indicator

Lights up when using Virtual CINEMA DSP (see page 29).

### ③ DIGITAL and PRO LOGIC indicators

Light up according to the type of Dolby signals this unit is reproducing. “DIGITAL” lights up when the built-in Dolby Digital decoder is on. “PRO LOGIC” lights up when the built-in Dolby Pro Logic decoder is on.

### ④ DSP indicator

Lights up when you select a DSP program.

### ⑤ DSP program indicators

The name of the selected DSP program lights up when the ENTERTAINMENT, MOVIE THEATER 1, MOVIE THEATER 2 or DTS SURROUND DSP program is selected.

### ⑥ STEREO indicator

Lights up when the unit is receiving a strong signal for an FM stereo broadcast while the “AUTO” indicator is lit.

### ⑦ AUTO indicator

Shows that this unit is in the automatic tuning mode.

### ⑧ VOLUME level indicator

Indicates the volume level.

### ⑨ Input source indicator

Shows the current input source with the arrow-shaped cursor.

### ⑩ 6.1/ES indicator

Lights up when the built-in Dolby Digital Matrix 6.1 or DTS ES decoder is on.

### ⑪ PCM indicator

Lights up when this unit is reproducing PCM (pulse code modulation) digital audio signals.

### ⑫ SP A/B indicator

Lights up according to which set of main speakers is selected. Both indicators light up when both sets of speakers are selected.

### ⑬ Headphones indicator

Lights up when headphones are connected.

### ⑭ Multi-information display

Shows the current DSP program name and other information when adjusting or changing settings.

### ⑮ MEMORY indicator

Flashes to show a station can be stored.

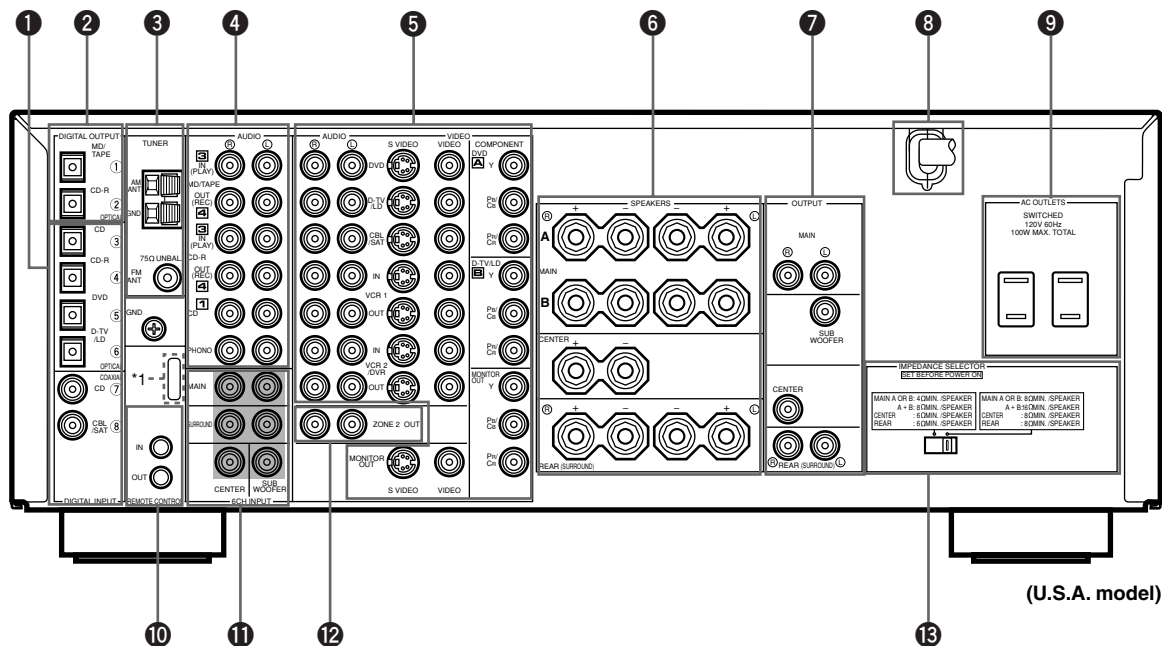
### ⑯ TUNED indicator

Lights up when this unit tunes in to a station.

### ⑰ SLEEP indicator

Lights up while the sleep timer is on.

## Rear Panel



(U.S.A. model)

### 1 DIGITAL INPUT jacks

### 2 DIGITAL OUTPUT jacks

### 3 Antenna input terminals

See page 30 for connection information.

### 4 Audio component jacks

See pages 12 and 13 for connection information.

### 5 Video component jacks

See pages 14 and 15 for connection information.

### 6 Speaker terminals

See pages 16 and 17 for connection information.

### 7 OUTPUT jacks

See page 18 for connection information.

### 8 AC power cord

Connect to a power outlet.

### 9 AC OUTLET(S)

Use these outlets to supply power to your other A/V components (see page 19).

### 10 REMOTE CONTROL IN/OUT jacks (U.S.A., Canada and Australia models only)

See page 54 for details.

### 11 6CH INPUT jacks

See pages 13 and 18 for connection information.

### 12 ZONE 2 OUT jacks (U.S.A., Canada and Australia models only)

See page 54 for details.

### 13 IMPEDANCE SELECTOR switch

Use this switch to match the amplifier output to your speaker impedance. Set this unit in the standby mode before you change the setting of this switch (see page 19).

### China and general models only

#### FREQUENCY STEP switch

See page 30.

#### VOLTAGE SELECTOR

See page 19.

\*1 As this terminal is used for an examination in the factory, do not connect any equipment to this terminal.

# SPEAKER SETUP

## Speakers to Be Used

This unit has been designed to provide the best sound-field quality with a 5-speaker system, using left and right main speakers, left and right rear speakers, and a center speaker. If you use different brands of speakers (with different tonal qualities) in your system, the tone of a moving human voice and other types of sound may not shift smoothly. We recommend that you use speakers from the same manufacturer or speakers with the same tonal quality.

The main speakers are used for the main source sound plus the effect sounds. They will probably be the speakers from your present stereo system. The rear speakers are used for the effect and surround sounds, and the center speaker is for the center sounds (dialog, vocals, etc.). If for some reason it is not practical to use a center speaker, you can do without it. Best results, however, are obtained with the full system.

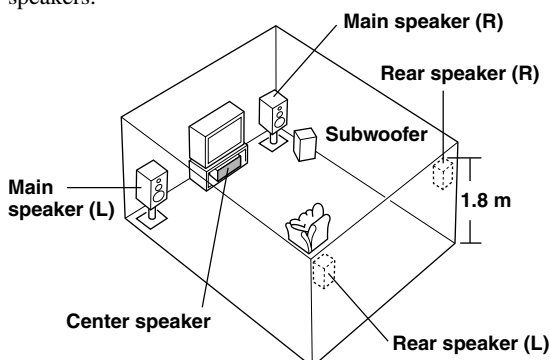
The main speakers should be high-performance models and have enough power-handling capacity to accept the maximum output of your audio system. The other speakers do not have to be equal to the main speakers. For precise sound localization, however, it is ideal to use high-performance models that can reproduce sounds over the full range for the center speaker and the rear speakers.

## ■ Use of a subwoofer expands your sound field

It is also possible to further expand your system with the addition of a subwoofer. The use of a subwoofer is effective not only for reinforcing bass frequencies from any or all channels, but also for reproducing the LFE (low-frequency effect) channel with high fidelity when the Dolby Digital signal or the DTS signal is played back. The YAMAHA Active Servo Processing Subwoofer System is ideal for natural and lively bass reproduction.

## Speaker Placement

Refer to the following diagram when you place the speakers.



## ■ Main speakers

Place the left and right main speakers an equal distance from the ideal listening position. The distance of each speaker from each side of the video monitor should be the same.

## ■ Rear speakers

Place these speakers behind your listening position, facing slightly inwards, nearly 1.8 m (approx. 6 feet) above the floor.

## ■ Center speaker

Align the front face of the center speaker with the front face of your video monitor. Place the speaker as close to the monitor as possible, such as directly over or under the monitor and centrally between the main speakers.

### Note

- If the center speaker is not used, the center channel sound will be heard from the left and right main speakers. In this case, "1A CENTER SP" on the SET MENU is set to NONE (see page 38 for details).

## ■ Subwoofer

The position of the subwoofer is not so critical, because low bass sounds are not highly directional. But it is better to place the subwoofer near the main speakers. Turn it slightly toward the center of the room to reduce the wall reflections.

### CAUTION

Some types of speakers interfere with a video monitor. If this problem occurs, move the speakers away from the monitor. If you cannot avoid installing the center speaker or subwoofer near the video monitor, use a magnetically shielded speaker.

# CONNECTIONS

## Before Connecting Components

### CAUTION

Never connect this unit and other components to mains power until all connections between components have been completed.

- Be sure all connections are made correctly, that is to say L (left) to L, R (right) to R, “+” to “+” and “-” to “-”. Some components require different connection methods and have different jack names. Refer to the operation instructions for each component to be connected to this unit.
- When you connect other YAMAHA audio components (such as a tape deck, MD recorder and CD player or changer), connect them to the jack with the same number labels as [1], [3], [4] etc. YAMAHA applies this labeling system to all its products.
- After you have completed all connections, check them again to make sure they are correct.

## Connecting Audio Components

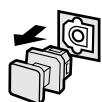
### ■ Connecting to digital jacks

This unit has digital jacks for direct transmission of digital signals through either coaxial or fiber optic cables. You can use the digital jacks to input PCM, Dolby Digital and DTS bitstreams. When you connect components to both the COAXIAL and OPTICAL jacks, priority is given to the input signals from the COAXIAL jack. All digital input jacks are acceptable for 96-kHz sampling digital signals (see page 25 for details).



- You can designate the input for each digital jacks according to your component by using “7 I/O ASSIGNMENT” on the SET MENU (see page 41 for details).

### About the dust protection cap



Pull out the cap from the optical jack before you connect the fiber optic cable. Do not discard the cap. When you are not using the optical jack, be sure to put the cap back in place. This cap protects the jack from dust.

### Note

- The OPTICAL jacks on this unit conform to the EIA standard. If you use a fiber optic cable that does not conform to this standard, this unit may not function properly.

### ■ Connecting a turntable

PHONO jacks are for connecting a turntable with an MM or high-output MC cartridge. If you have a turntable with a low-output MC cartridge, use an inline boosting transformer or MC-head amplifier when connecting to these jacks.



- The GND terminal does not electrically ground the turntable. It simply reduces noise in the signal. In some cases, you may hear less noise if you do not connect to the GND terminal.

### ■ Connecting a CD player



- The COAXIAL CD and OPTICAL CD jacks are available for a CD player which has coaxial or optical digital output jacks.
- When you connect a CD player to both the COAXIAL CD and OPTICAL CD jacks, priority is given to the input signals from the COAXIAL CD jack.

### ■ Connecting an MD recorder, tape deck or CD recorder



- Only digital signals input from a source such as a CD or DVD are output from the DIGITAL OUTPUT jacks.
- When you connect your recording component to both the analog and digital input and output jacks, the priority is given to the digital signal.
- You can connect an MD recorder to any digital input jack by using “7 I/O ASSIGNMENT” on the SET MENU (see page 41).

### Notes

- When you connect a recording component to this unit, keep its power on while using this unit. If the power is off, this unit may distort the sound from other components.
- When you record from a source component connected to this unit while this unit is set in the standby mode, the recorded sound may be distorted. To avoid this problem, turn on this unit.





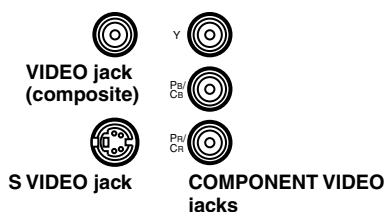
- 13

## Connecting Video Components

### About the video jacks

There are three types of video jacks. Video signals input through the VIDEO jacks are the conventional composite video signals. Video signals input through the S VIDEO jacks are separated into luminance (Y) and color (C) video signals. The S-video signals achieve high-quality color reproduction. Video signals input through the COMPONENT VIDEO jacks are separated into luminance (Y) and color difference ( $P_B/C_B$ ,  $P_R/C_R$ ) video signals. The jacks are also separated into three for each signal. The description of the component video jacks may be different depending on the component (e.g. Y,  $C_B$ ,  $C_R/Y$ ,  $P_B$ ,  $P_R/Y$ , B-Y, R-Y etc.). Component video signals provide the best quality in picture reproduction.

If your video component has an S-video output or component video output, you can connect it to this unit. Connect the S-video signal output jack on your video component to the S VIDEO jack or connect the component signal output jacks on your video component to the COMPONENT VIDEO jacks.



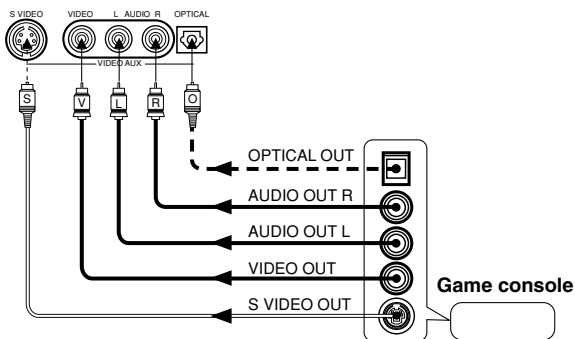
- Each type of video jack works independently. Signals input through the composite video, S-video and component jacks are output through the corresponding composite video, S-video, and component jacks, respectively.
- If you make S-video connections to this unit, it is not necessary to make composite video connections. If both types of connections are made, this unit gives priority to the S-video signal.
- You can designate the input for the COMPONENT VIDEO A and B jacks according to your component by using "I/O ASSIGNMENT" on the SET MENU (see page 41 for details).

#### Notes

- Use a commercially available S-video cable when connecting to the S VIDEO jack, and commercially available video cables when connecting to the COMPONENT VIDEO jacks.
- When you are using the COMPONENT VIDEO jacks, check the details in the owner's manual that came with the component being connected.

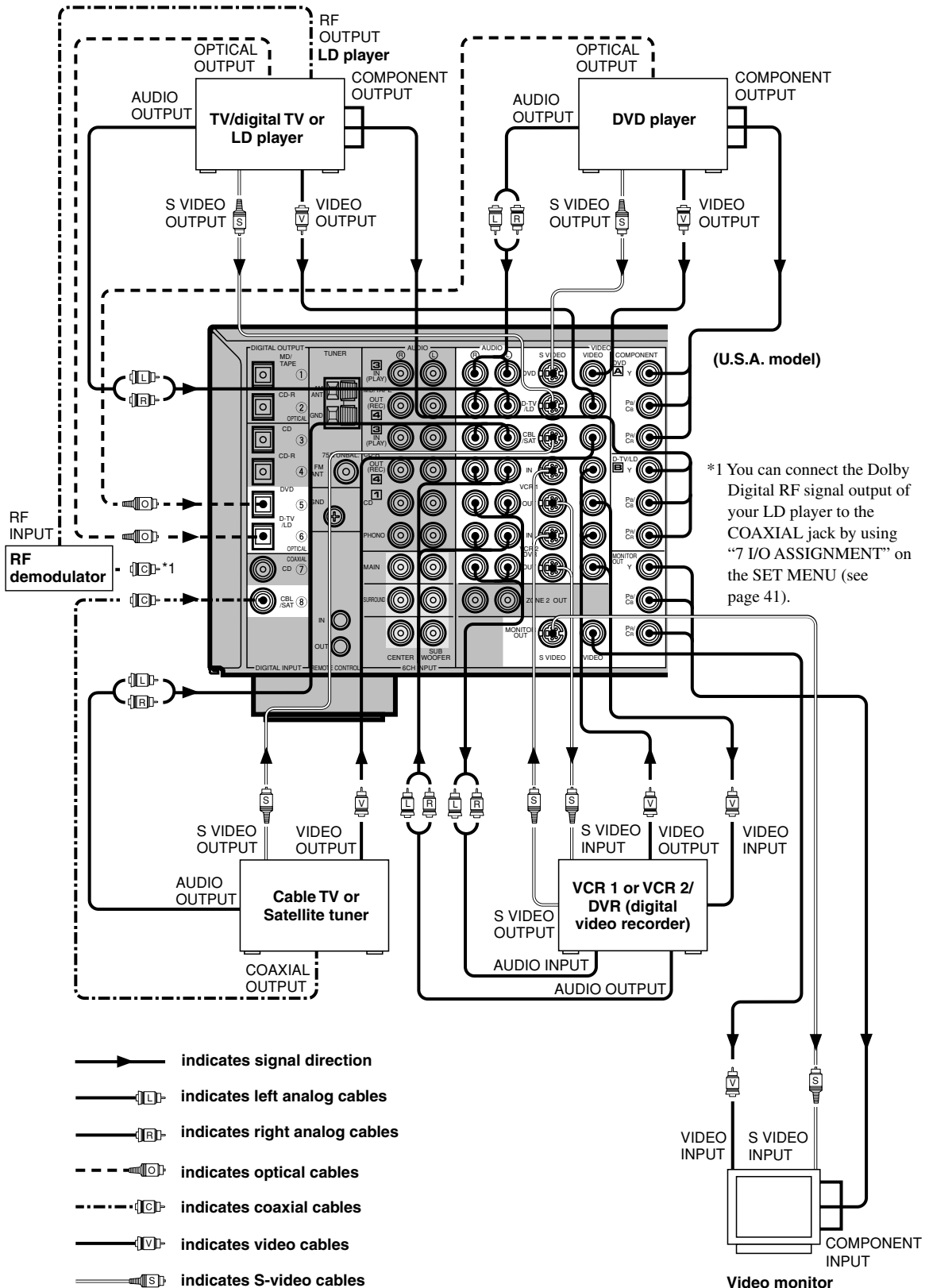
### VIDEO AUX jacks (on the front panel)

These jacks are used to connect any video input source such as a game console to this unit.



**Note**

- If your LD player has an Dolby Digital RF signal output jack, connect it to this unit through an RF demodulator (separately purchased).



## Connecting the Speakers

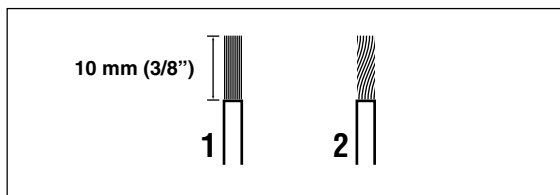
Be sure to connect the left channel (L), right channel (R), “+” (red) and “-” (black) properly. If the connections are faulty, no sound will be heard from the speakers, and if the polarity of the speaker connections is incorrect, the sound will be unnatural and lack bass.

### CAUTION

- Use speakers with the specified impedance shown on the rear panel of this unit.
- Do not let the bare speaker wires touch each other and do not let them touch any metal part of this unit. This could damage the unit and/or speakers.

If necessary, use the SET MENU to change the speaker mode settings according to the number and size of the speakers in your configuration after you finish connecting your speakers.

### ■ Speaker cables



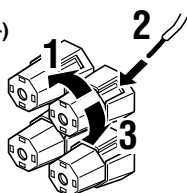
A speaker cord is actually a pair of insulated cables running side by side. One of the cables is colored or shaped differently, perhaps with a stripe, groove or ridge.

**1 Remove approx. 10 mm (3/8") of insulation from each of the speaker cables.**

**2 Twist the exposed wires of the cable together to prevent short circuits.**

### ■ Connecting to the SPEAKERS terminals

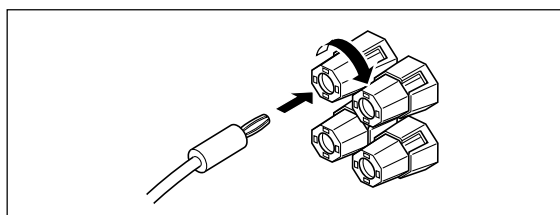
Red: positive (+)  
Black: negative (-)



**1 Unscrew the knob.**

**2 Insert one bare wire into the hole in the side of each terminal.**

**3 Tighten the knob to secure the wire.**



(U.S.A., Canada, Australia, China and general models only)

- Banana plug connections are also possible. First, tighten the knob and then insert the banana plug connector into the end of the corresponding terminal.

### ■ MAIN SPEAKERS terminals

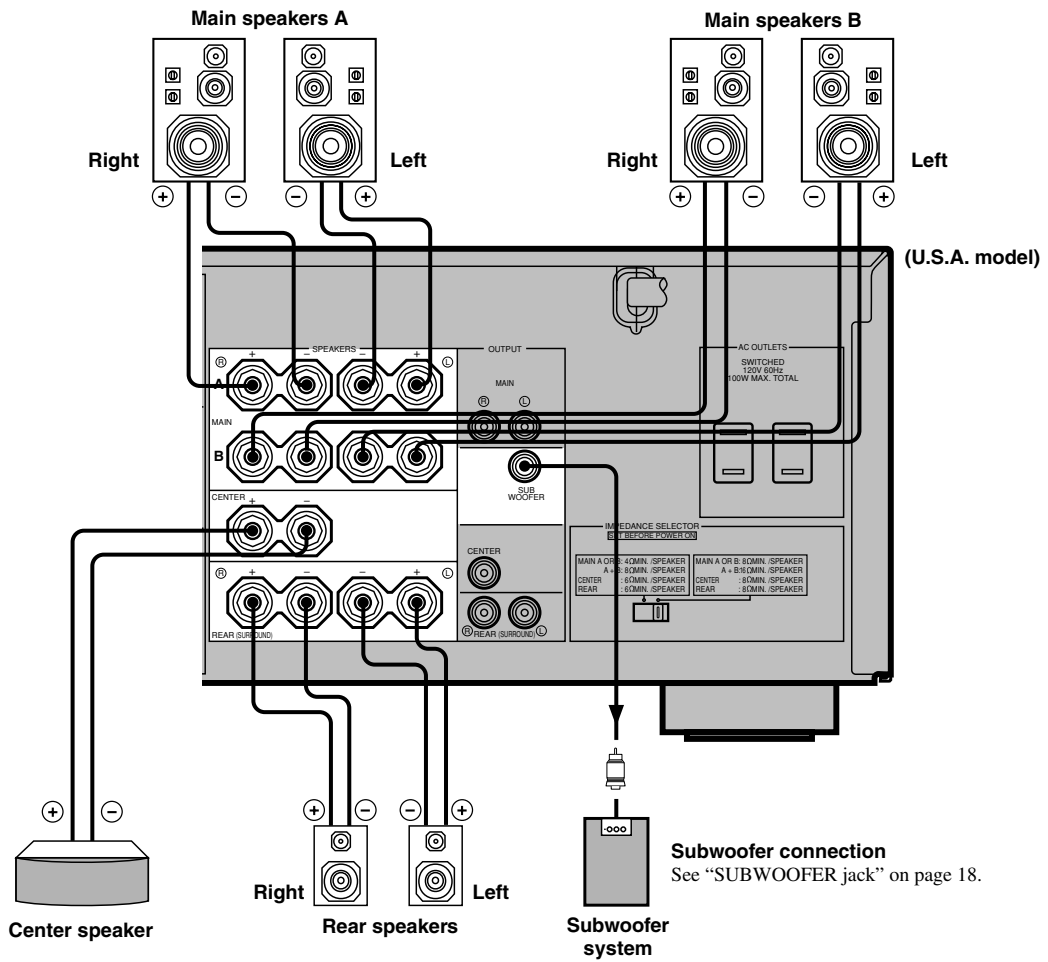
One or two speaker systems can be connected to these terminals. If you use only one speaker system, connect it to either of the MAIN A or B terminals.

### ■ REAR SPEAKERS terminals

A rear speaker system can be connected to these terminals.

### ■ CENTER SPEAKER terminals

A center speaker can be connected to these terminals.

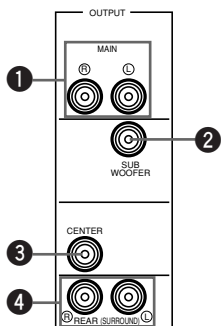


## Connecting to an External Amplifier

If you want to increase the power output to the speakers, or want to use another amplifier, connect an external amplifier to the OUTPUT jacks as follows.

### Note

- When RCA pin plugs are connected to the OUTPUT jacks for output to an external amplifier, it is not necessary to use the corresponding SPEAKERS terminals.



### 1 MAIN jacks

Main channel line output jacks.

### Note

- The signals output through these jacks are affected by the BASS, TREBLE and BASS EXTENSION settings.

### 2 SUBWOOFER jack

When using a subwoofer with built-in amplifier, including the YAMAHA Active Servo Processing Subwoofer System, connect the input jack of the subwoofer system to this jack. Low bass signals distributed from the main, center and/or rear channels are directed to this jack. (The cut-off frequency of this jack is 90 Hz.) The LFE (low-frequency effect) signals generated when Dolby Digital or DTS is decoded are also directed if they are assigned to this jack.

### Notes

- Adjust the volume level of the subwoofer with the control on the subwoofer. The subwoofer volume cannot be adjusted from this unit.
- Depending on the settings of "1 SPEAKER SET", "10A LFE LEVEL" and "11 DTS LFE LEVEL" on the SET MENU, some signals may not be output from the SUBWOOFER jack.

### 3 CENTER jack

Center channel line output jack.

### 4 REAR (SURROUND) jacks

Rear channel line output jacks.

## Connecting an External Decoder

This unit is equipped with 6 additional input jacks (left and right MAIN, CENTER, left and right SURROUND and SUBWOOFER) for discrete multi-channel input from an external decoder, sound processor or pre-amplifier.

Connect the output jacks on your external decoder to the 6CH INPUT jacks. Be sure to match the left and right outputs to the left and right input jacks for the main and surround channels.

### Notes

- When you select 6CH INPUT as the input source, this unit automatically turns off the digital sound field processor, and you cannot listen to DSP programs.
- When you select 6CH INPUT as the input source, changing items 1A to 1E on the SET MENU is not affected.

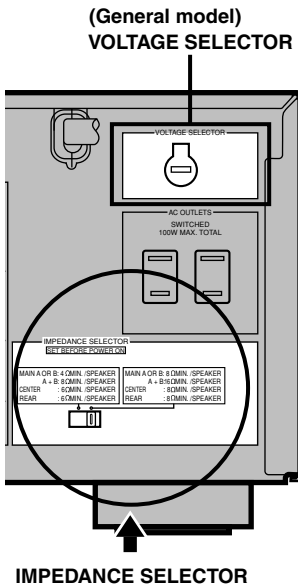
## IMPEDANCE SELECTOR Switch

### WARNING

Do not change the IMPEDANCE SELECTOR switch setting while the power of this unit is on, otherwise the unit may be damaged.

If this unit fails to turn on when STANDBY/ON (or POWER) is pressed, the IMPEDANCE SELECTOR switch may not be fully slid to either position. If so, slide the switch to either position fully when this unit is in the standby mode.

Select the left and right position according to the impedance of the speakers in your system. Be sure to move this switch only when this unit is in the standby mode.



Switch position	Speaker	Impedance level
Left	Main	If you use one set of main speakers, the impedance of each speaker must be 4 $\Omega$ or higher. If you use two sets of main speakers, the impedance of each speaker must be 8 $\Omega$ or higher.
	Center	The impedance must be 6 $\Omega$ or higher.
	Rear	The impedance of each speaker must be 6 $\Omega$ or higher.
Right	Main	If you use one set of main speakers, the impedance of each speaker must be 8 $\Omega$ or higher. If you use two sets of main speakers, the impedance of each speaker must be 16 $\Omega$ or higher. [Canada model only] The impedance of each speaker must be 8 $\Omega$ or higher.
	Center	The impedance must be 8 $\Omega$ or higher.
	Rear	The impedance of each speaker must be 8 $\Omega$ or higher.

### VOLTAGE SELECTOR (China and general models only)

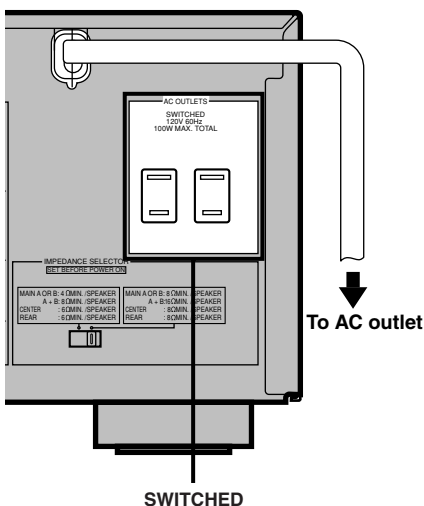
The VOLTAGE SELECTOR on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply. Voltages are 110/120/220/240 V AC, 50/60 Hz.

## Connecting the Power Supply Cords

After completing all connections, connect the AC power cord to an AC power outlet. Disconnect the AC power cord if you will not use this unit for a long period of time.

### AC OUTLET(S) (SWITCHED)

(U.S.A. model)



U.S.A., Canada, Singapore, China and

general models ..... 2 OUTLETS

Australia model ..... 1 OUTLET

Use these outlets to connect the power cords from your components to this unit. The power to the AC OUTLET(S) is controlled by this unit's STANDBY/ON (or POWER and STANDBY). These outlets will supply power to any connected component whenever this unit is turned on. The maximum power (total power consumption of components) that can be connected to the AC OUTLET(S) is 100 W.

# ON-SCREEN DISPLAY (OSD)

You can display the operation information for this unit on a video monitor. If you display the SET MENU and DSP program parameter settings on a monitor, it is much easier to see the available options and parameters than it is by reading this information on the front panel display.



- If a video source is being reproduced, the OSD is superimposed over the image.
- The OSD signal is not output to the REC OUT jack, and will not be recorded with any video signal.
- You can set the OSD to turn on (blue background) or off when a video source is not being reproduced (or the source component is turned off) by using “14 DISPLAY SET” on the SET MENU (see page 43).

## OSD Modes

You can change the amount of information the OSD shows.

### Full display

This mode always shows the DSP program parameter settings on the video monitor (see page 61).

### Short display

This mode briefly shows the same contents as the front panel display at the bottom of the screen and then disappears.

### Display off

This mode briefly shows the “DISPLAY OFF” message at the bottom of the screen and then disappears. Afterwards, no changes to operations appear on the monitor except those of the ON SCREEN button.

P01 CONCERT HALL

→ INIT. DLY . . . . 45ms  
ROOM SIZE . . . . 1.0  
LIVENESS . . . . . 5

Full display

P01 CONCERT HALL

Short display

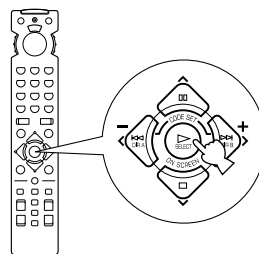


- When you choose the full display mode, INPUT <I/D>, VOLUME and some other types of operation information are displayed at the bottom of the screen in the same format as that for the front panel display.
- The SET MENU and test tone display appear regardless of the OSD mode.

## Selecting the OSD Mode

**1** When you turn on the power, the video monitor and front panel display show the level of the main volume for a few seconds and then switch to show the current DSP program.

**2** Press ON SCREEN on the remote control repeatedly to change the display mode. The OSD mode changes in the following order: full display, short display, and display off.



### Notes

- If you choose a video input source that has a component connected to both the S VIDEO IN and composite VIDEO IN jacks, and both the S VIDEO OUT and composite VIDEO OUT jacks are connected to a video monitor, the video signal is output to both the S VIDEO OUT and VIDEO OUT jacks. However, the OSD is carried only on the S-video signal. If no video signal is input, the OSD is carried on both the S-video and composite video signals.
- If your video monitor is connected only to the COMPONENT VIDEO jacks of this unit, the OSD is not shown. Make sure to connect your video monitor to the COMPONENT VIDEO jacks and either VIDEO or S VIDEO jacks if you want to see the OSD.
- Playing back video software that has an anti-copy signal or video signals with a lot of noise may produce unstable images.



# SPEAKER MODE SETTINGS

This unit has 5 SPEAKER SET items on the SET MENU that you must set according to the number of speakers in your configuration and their size. The following table summarizes these SPEAKER SET items, and shows the initial settings as well as other possible settings. If the initial settings are not appropriate for your speaker configuration, change the settings on the SET MENU (see page 36).

## Summary of SPEAKER SET Items 1A through 1E

Item	Description	Initial setting
<b>1A CENTER SP</b>	Selects the center channel output mode according to the size of the center speaker. The possible settings are LRG (large), SML (small) and NONE.	LRG
<b>1B MAIN SP</b>	Selects the main channel output mode according to the size of the main speakers. The possible settings are LARGE and SMALL.	LARGE
<b>1C REAR L/R SP</b>	Selects the rear channel output mode according to the size of the rear speakers. The possible settings are LRG (large), SML (small) and NONE.	LRG
<b>1D LFE/BASS OUT</b>	Selects a speaker for the LFE signal output and low bass signal. The possible settings are SWFR (subwoofer), MAIN, and BOTH.	BOTH
<b>1E MAIN LEVEL</b>	Selects the output level for the main channel signal. The possible settings are Normal and -10 dB.	Normal

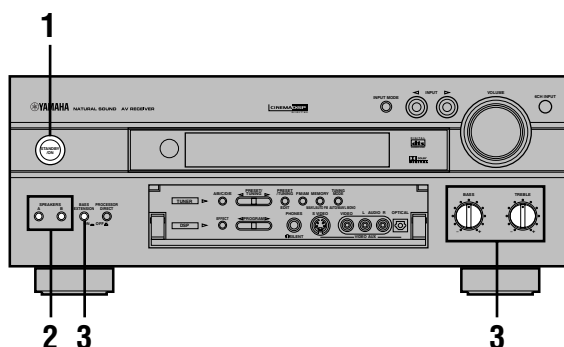
# ADJUSTING THE SPEAKER OUTPUT LEVELS

This section explains how to adjust the speaker output levels by using the test tone generator. When this adjustment is made, the output level heard at the listening position will be the same from each speaker. This is important for the best performance of the digital sound field processor, the Dolby Pro Logic decoder, Dolby Digital decoder and DTS decoder.

## Note

- Since this unit cannot enter the test mode while headphones are connected to this unit, be sure to unplug the headphones from the PHONES jack when using the test tone.

## Before You Begin

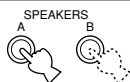


- 1 Press STANDBY/ON to turn on the power. Turn on the video monitor.**

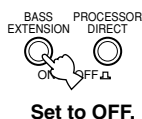
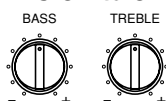


- 2 Press SPEAKERS A or B to select the main speakers to be used.**

If you are using two sets of the main speakers, press both A and B.



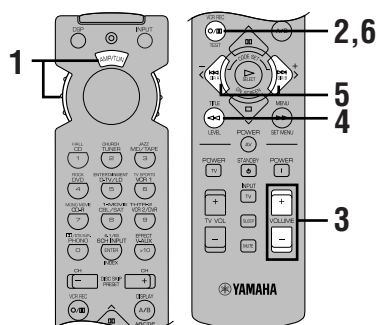
- 3 Set BASS and TREBLE on the front panel to the center position and set BASS EXTENSION to OFF.**



Set to OFF.

## Using the Test Tone (TEST DOLBY SUR.)

Use the test tone to balance the output levels of the 5 speakers required for a surround sound system. The adjustment of each speaker output level should be made at your listening position with the remote control. After completing the adjustments, use VOLUME +/- at your listening position to check if the adjustments are satisfactory.



- 1 Set the selector dial to the AMP/TUN (or DSP/TUN) position.**

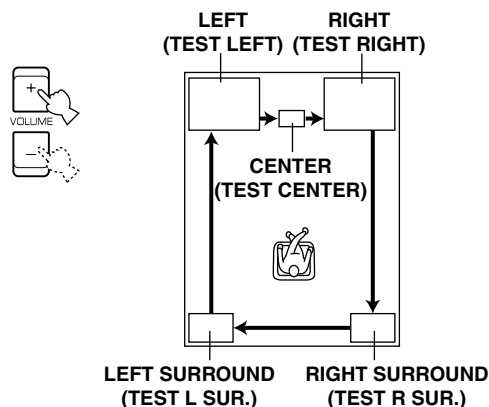


- 2 Press TEST to output the test tone.**

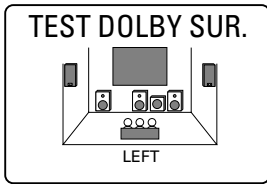


- 3 Adjust the volume so you can hear the test tone.**

The test tone is heard from the left main speaker, center speaker, right main speaker, right rear speaker and left rear speaker in order. The tone is produced for 2.5 seconds each time.



The state of the test tone output is also shown on the monitor by an image of the audio listening room. This is convenient for adjusting each speaker level.



- If "1A CENTER SP" on the SET MENU is set to NONE, the center channel sound is automatically output from the left and right main speakers.

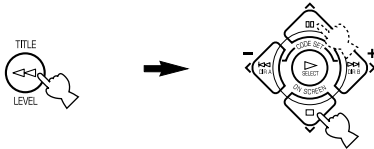
#### Note

- If the test tone cannot be heard, turn down the volume, set the unit in the standby mode and check the speaker connections.

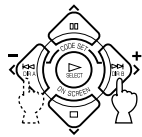
#### 4 Press LEVEL repeatedly to select the speaker to be adjusted.



- Once you press LEVEL, you can also select the speaker to be adjusted by pressing  $\nabla$ . (Pressing  $\wedge$  changes the selection in the reverse order.)



#### 5 Press $\langle / \rangle$ repeatedly to adjust the output level of the effect speakers so that the output level coming from each speaker is the same.



While adjusting, the test tone is heard from the selected speaker.

#### 6 When the adjustment is complete, press TEST.

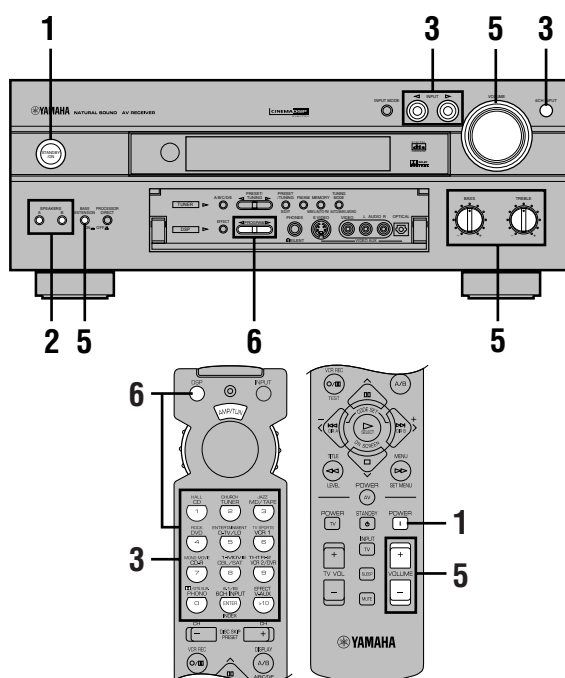
The test tone stops and the current DSP program appears on the front panel display and on the video monitor.



- The tonal quality of the center speaker can be adjusted by using "5 CENTER GEQ" on the SET MENU (see page 40).
- You can increase the output levels of the effect speakers (center, left rear and right rear) to +10 dB. If the output level of these speakers is lower than that of the main speakers even after you have increased the output level of these speakers up to +10 dB, set "1E MAIN LEVEL" on the SET MENU to -10 dB (see page 39). This setting decreases the main speaker output level to about one-third of the normal level. After you have set "1E MAIN LEVEL" on the SET MENU to -10 dB, adjust the levels for the center and rear speakers again.

# BASIC PLAYBACK

When using the remote control, set the selector dial to the AMP/TUN position.



- 1 Press STANDBY/ON (or POWER) to turn on the power. Turn on the video monitor.**  
The front panel display and the video monitor show the level of the main volume for a few seconds and then switch to show the current DSP program.



Front panel

or



Remote control

- 2 Press SPEAKERS A or B to select the main speakers to be used.**

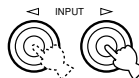
If you are using two sets of main speakers, press both A and B.



Front panel

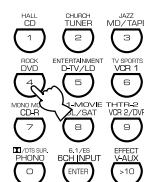
- 3 Press INPUT  $\triangleleft$  /  $\triangleright$  repeatedly (or press one of the input selector buttons) to select the input source.**

- The current input source is indicated on the front panel display with an arrow.
- The current input source name and input mode appear on the front panel display and on the video monitor for a few seconds.

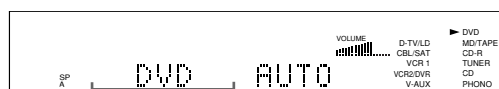


Front panel

or



Remote control



Selected input source

**Select this:** To reproduce the signal from this component

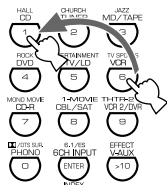
DVD:	DVD player
D-TV/LD:	TV or digital TV/LD player
CBL/SAT:	Cable TV/satellite tuner
VCR 1:	Video cassette deck 1
VCR 2/DVR:	Video cassette deck 2/digital video recorder
V-AUX:	Another A/V component (connected to the VIDEO AUX jacks on the front panel)
PHONO:	Turntable
CD:	CD player
TUNER:	AM/FM tuner
CD-R:	CD recorder
MD/TAPE:	MD recorder/tape deck



## ■ BGV (background video) function

The BGV function allows you to combine a video image from a video source with a sound from an audio source. (For example, you can listen to classical music while you are watching a video.)

Select a source from the video group and then select a source from the audio group with the input selector buttons on the remote control. The BGV function does not work if you select the sources with INPUT ◀/▶ on the front panel.

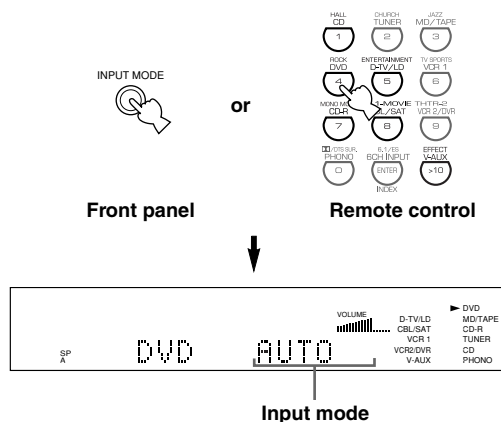


## Input Modes and Indications

This unit comes with various input jacks. If your component is connected to more than one type of input jack, you can set the priority of the input signal.

When you turn on the power of this unit, the input mode is set according to “8 INPUT MODE” on the SET MENU (see page 41 for details).

**Press INPUT MODE (or the input selector button that you have pressed to select the input source on the remote control) repeatedly until the desired input mode is shown on the front panel display and on the video monitor.**



**AUTO:** In this mode, the input signal is automatically selected in the following order:

- 1) Dolby Digital or DTS signal
- 2) Digital (PCM) signal
- 3) Analog signal

**DTS:** In this mode, only the digital input signal encoded with DTS is selected even if another signal is input at the same time.

**ANALOG:** In this mode, only the analog input signal is selected even if a digital signal is input at the same time.

### Notes

- If digital signals are input from both the COAXIAL and OPTICAL jacks, the digital signal from the COAXIAL jack is selected.
- When AUTO is selected, this unit automatically determines the type of signal. If this unit detects a Dolby Digital or DTS signal, the decoder automatically switches to the appropriate setting and reproduces 5.1 channel source.
- The sound output may be interrupted for some LD and DVD players in the following situation: The input mode is set to AUTO. A search is performed while playing the disc encoded with Dolby Digital or DTS, and then disc playing is restored. The sound output is interrupted for a moment because the digital signal was selected again.

## ■ Notes on playing a source encoded with a DTS signal

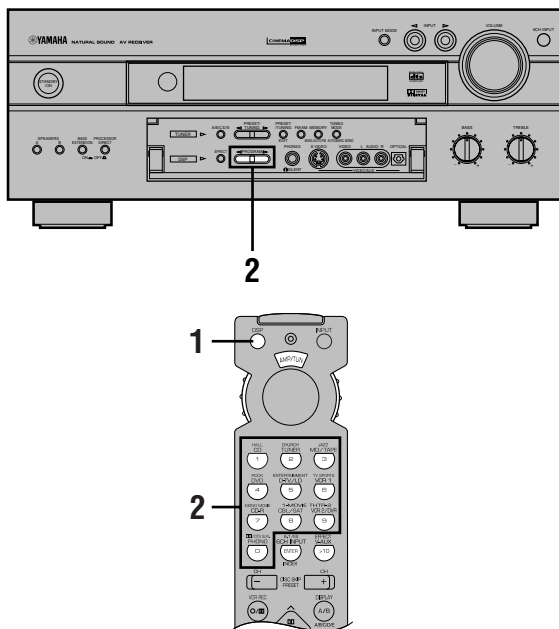
- If the digital output data of the player has been processed in any way, you may not be able to perform DTS decoding even if you make a digital connection between this unit and the player.
- If you play a source encoded with a DTS signal and set the input mode to ANALOG, this unit reproduces the noise of an unprocessed DTS signal. When you want to play a DTS source, be sure to connect the source to a digital input jack and set the input mode to AUTO or DTS.
- If you switch the input mode to ANALOG while playing a source encoded with a DTS signal, this unit reproduces no sound.
- If you play a source encoded with a DTS signal and set the input mode to AUTO, there will be a moment of noise while the unit recognizes the DTS signal and turns on the DTS decoder. This is not a malfunction. You can avoid this by setting the input mode to DTS beforehand.
- If you continue to play a source encoded with a DTS signal with the input mode setting left to AUTO, this unit automatically switches to the “DTS-decoding” mode to prevent noise from being generated during subsequent operation. (The “**dts**” indicator lights up on the front panel display.) The “**dts**” indicator will flash immediately after playback of a source encoded with a DTS signal has finished. Only a source encoded with a DTS signal can be played back while this indicator is flashing. If you want to play a normal PCM source soon, set the input mode back to AUTO.
- The “**dts**” indicator will flash when the input mode is set to AUTO and a search or skip operation is performed while playing back a source encoded with a DTS signal. If this status continues for 30 or more seconds, the unit will automatically switch from the “DTS-decoding” mode to PCM digital signal input mode and the “**dts**” indicator will go out.

## ■ Notes on playing an LD source

- For LD software that does not contain a digital soundtrack, connect the LD player to the analog jacks and set the input mode to AUTO or ANALOG.
- If the LD player is transmitting a signal by a non-standard method, this unit cannot detect the Dolby Digital or DTS signal. In this case, the decoder automatically switches to PCM or analog.
- Some A/V components such as LD players output different audio signals through their analog and digital jacks. Change the input mode as necessary.
- While you are operating the LD player and playing a disc encoded with a Dolby Digital signal, if you switch from the pause or chapter forwarding function to normal playback, you may hear the PCM or analog sound an instant before the Dolby Digital signal is played.

## Selecting a Sound Field Program

You can enhance your listening experience by selecting a DSP program. For details about each program, see pages 55 to 58.



**1** Press **DSP** on the remote control.

The indicator lights up for about 3 seconds.



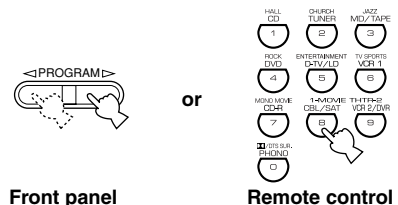
- If the selector dial is set to the DSP/TUN position, skip this step.



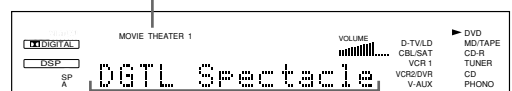
### Remote control

**2** Use the numeric buttons to select the desired program before the indicator goes off (or press **PROGRAM**  $\triangleleft$  /  $\triangleright$  repeatedly on the front panel).

- For example, to select the sub-program “Spectacle”, press MOVIE THEATER 1 repeatedly.
- The name of the selected program appears on the front panel display and on the video monitor.



### Program group



**Program name (sub-program)**

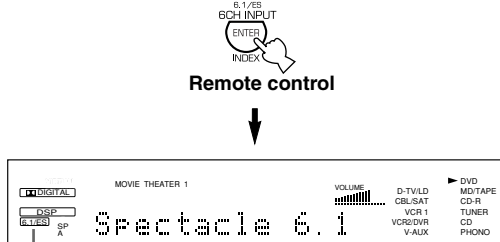
## Notes

- Choose a DSP program based on your listening preference, and not on the name of the program. The acoustics of your listening room affect the DSP program. Minimize the sound reflections in your room to maximize the effect created by the program.
- When you select an input source, this unit automatically selects the last DSP program used with that source.
- When you set this unit in the standby mode, the current source and DSP program are memorized and are automatically selected when you turn on the power again.
- If a Dolby Digital or DTS signal is input when the input mode is set to AUTO, the DSP program automatically switches to the appropriate decoding program.
- When a monaural source is being played with PRO LOGIC/Normal or PRO LOGIC/ENHANCED, no sound will be heard from the main speakers and the rear speakers. Sound can only be heard from the center speaker. However, if "1A CENTER SP" on the SET MENU is set to NONE, the center channel sound is output from the main speakers.
- When a source connected to the 6CH INPUT jacks of this unit is selected, the digital sound field processor cannot be used.
- When 96-kHz sampling digital signals are input to this unit, the DSP program cannot be selected. In this case, the sound is reproduced as normal 2-channel stereo.



■ **Dolby Digital Matrix 6.1 or DTS ES decoder**

If you want to use the Dolby Digital Surround EX or DTS ES software, press 6.1/ES to turn on the Dolby Digital Matrix 6.1 or DTS ES decoder (see “12 6.1/ES AUTO” on page 42 and 58 for details).



The “ 6.1/ES ” indicator lights up.

## ■ Virtual CINEMA DSP and SILENT CINEMA DSP

You can experience the virtual CINEMA DSP sound field by setting “1C REAR L/R SP” on the SET MENU to NONE. The sound field processing is changed to the Virtual CINEMA DSP mode according to the selected DSP program. Virtual CINEMA DSP is performed by using the main speakers. You can also listen to SILENT CINEMA DSP by connecting your headphones to the PHONES jack while the digital sound field processor is on.

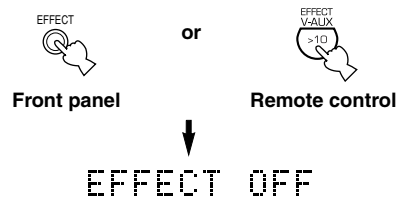
**Note**

- This unit is not set in the virtual CINEMA DSP mode even if “1C REAR L/R SP” is set to NONE in the following cases:
  - when the 5ch Stereo, DOLBY DIGITAL/Normal or DTS/Normal program is selected;
  - when the sound effect is turned off;
  - when 6CH INPUT is selected as the input source;
  - when 96-kHz sampling digital signals are input to this unit;
  - when the Dolby Digital KARAOKE source is played;
  - when using the test tone; or
  - when connecting the headphones.

### ***Normal Stereo Reproduction***

**Press EFFECT to turn off the sound effect for normal stereo reproduction.**

Press EFFECT again to turn the sound effect back on.



- If the selector dial is set to a position other than the DSP/TUN position, first press DSP and then EFFECT on the remote control.

## Notes

- If you turn off the sound effect, no sound is output from the center and rear speakers.
- If you turn off the sound effect while a Dolby Digital or DTS signal is being output, the dynamic range of the signal is automatically compressed and the sounds of the center and rear speaker channels are mixed and output from the main speakers.
- The volume may be greatly reduced when you turn off the sound effect or if you set "10B D-RANGE" on the SET MENU to MIN. In this case turn on the sound effect.

# TUNING

## Connecting the Antennas

Both AM and FM indoor antennas are included with this unit. In general, these antennas should provide sufficient signal strength.

Connect each antenna correctly to the designated terminals.

### FREQUENCY STEP switch (China and general models only)



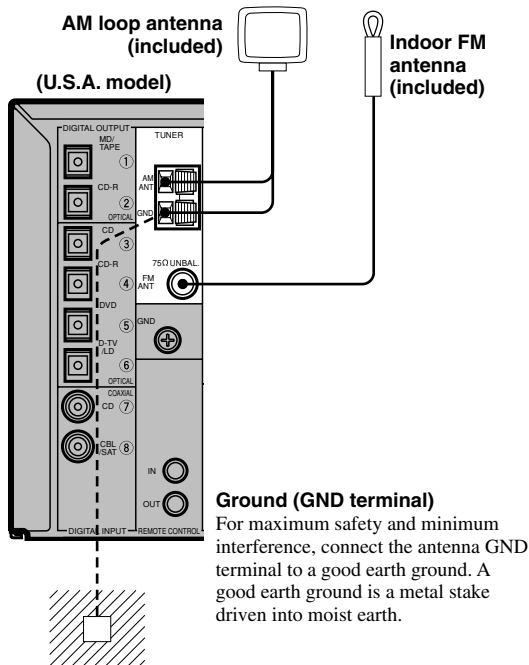
Because the interstation frequency spacing differs in different areas, set the FREQUENCY STEP switch (located at the rear) according to the frequency spacing in your area.

North, Central and South America:

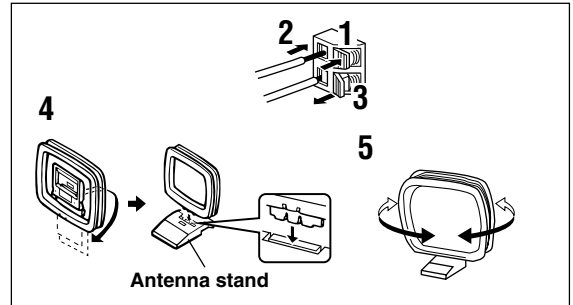
100 kHz/10 kHz

Other area: 50 kHz/9 kHz

Before setting this switch, disconnect the AC power plug of this unit from the AC outlet.



### Connecting the AM loop antenna



**1** Press and hold the tab to unlock the terminal hole.

**2** Insert the AM loop antenna lead wires into the AM ANT and GND terminals.

**3** Release the tab to lock the lead wires.  
Lightly pull the lead wires to confirm a good connection.

**4** Attach the loop antenna to the antenna stand.

**5** Orient the AM loop antenna so that the best reception is obtained.



- The AM loop antenna can be removed from the stand and attached to a wall, etc.

#### Notes

- The AM loop antenna should be placed away from this unit.
- The AM loop antenna should always be connected, even if an outdoor AM antenna is connected to this unit.

A properly installed outdoor antenna provides clearer reception than an indoor one. If you experience poor reception quality, an outdoor antenna may improve the quality. Consult the nearest authorized YAMAHA dealer or service center about the outdoor antennas.

### Connecting the indoor FM antenna

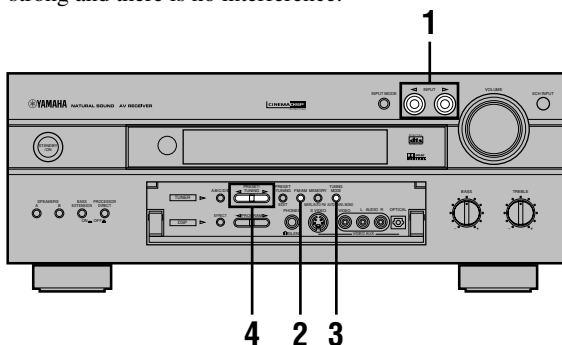
Connect the included indoor FM antenna to the 75Ω UNBAL. FM ANT terminal.

#### Note

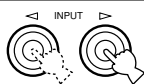
- Do not connect an outdoor FM antenna and the indoor FM antenna at the same time.

## Automatic (or Manual) Tuning

Automatic tuning is effective when station signals are strong and there is no interference.



- 1** Press INPUT  $\triangleleft/\triangleright$  to select TUNER as the input source.



- 2** Press FM/AM to select the reception band. “FM” or “AM” appears on the front panel display.



→ FM or AM

- 3** Press TUNING MODE (AUTO/MAN'L MONO) so that the “AUTO” indicator lights up on the front panel display.



→ AUTO  
Lights up

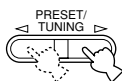
If the colon (:) appears on the front panel display next to the band indication, press PRESET/TUNING (EDIT) to turn it off.



→ SP A : FM  
Turn this indicator off.

- 4** Press PRESET/TUNING  $\triangleleft$  or  $\triangleright$  once to begin automatic tuning.

Press  $\triangleright$  to tune in to a higher frequency, or press  $\triangleleft$  to tune in to a lower frequency. Press the same button again if the tuning search does not stop at the desired station.



- Use the manual tuning method if the tuning search does not stop at the desired station because the signal is weak.
- When tuned in to a station, the “TUNED” indicator lights up and the frequency of the received station is shown on the front panel display.

If the signal from the station you want to select is weak, you must tune in to it manually.

- 3** Press TUNING MODE (AUTO/MAN'L MONO) so that the “AUTO” indicator goes off from the front panel display.



AUTO  
Goes off

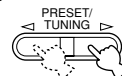
If the colon (:) appears on the front panel display next to the band indication, press PRESET/TUNING (EDIT) to turn it off.



SP A : FM  
Turn this indicator off.

- 4** Press PRESET/TUNING  $\triangleleft/\triangleright$  to tune in to the desired station manually.

Hold down the button to continue the tuning search.



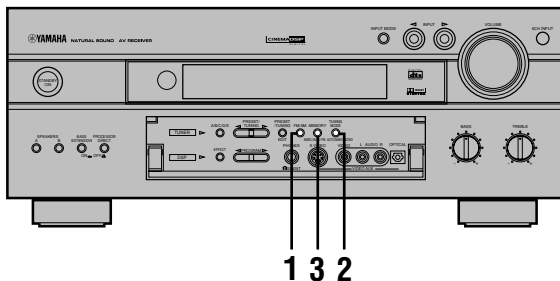
### Note

- Manually tuning in to an FM station will automatically change the reception mode to monaural to increase the signal quality.

## Presetting Stations

### ■ Automatically presetting stations (for FM stations)

You can use the automatic preset tuning feature to store FM stations. This function enables the unit to automatically tune in to FM stations with strong signals, and to store up to 40 (8 stations x 5 groups) of those stations in order. This feature enables you to easily tune in to any preset station by selecting the preset station number (see page 33).



#### 1 Press FM/AM to select the FM band.

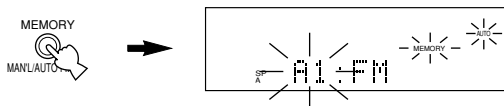


#### 2 Press TUNING MODE (AUTO/MAN'L MONO) so that the "AUTO" indicator lights up on the front panel display



#### 3 Press and hold MEMORY (MAN'L/AUTO FM) for more than 3 seconds.

The preset number, the "MEMORY" and "AUTO" indicators flash. Then, after about 5 seconds, automatic preset tuning begins from the frequency currently displayed toward the higher frequencies.



When automatic preset tuning is completed, the front panel display shows the frequency of the last preset station.

### Notes

- Any stored station data existing under a preset number is cleared when you store a new station under that preset number.
- You can manually replace a preset station with another FM or AM station by simply following the procedure in the section "Manually presetting stations" on page 33.
- If the number of the received stations does not reach E8, automatic preset tuning has automatically stopped after searching all stations.
- Only FM stations with sufficient signal strength are stored automatically by automatic preset tuning. If the station you want to store is weak in signal strength, tune in to it manually in the monaural mode, and store it by following the procedure in "Manually presetting stations" on page 33.

### Automatic preset tuning options

You can select the preset number from which the unit will store FM stations and/or begin tuning toward lower frequencies. Before automatic preset tuning begins (after pressing MEMORY in step 3):

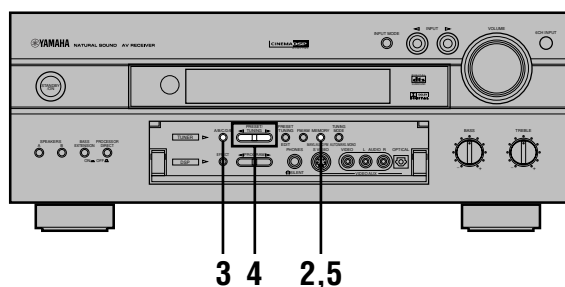
- Press A/B/C/D/E and PRESET/TUNING ◀/▶ to select the preset number under which the first station will be stored. Automatic preset tuning will stop when stations have all been stored up to E8.
- Press PRESET/TUNING (EDIT) to turn off the colon (:) and then press PRESET/TUNING ◀ to begin tuning toward lower frequencies.

### Memory back-up

The memory back-up circuit prevents the stored data from being lost even if this unit is set in the standby mode, the power cord is disconnected from the AC outlet, or the power supply is temporarily cut due to power failure. However, if the power is cut for more than one week, the preset stations may be cleared. If so, store the stations again by using the presetting station methods.

## Manually presetting stations

You can also store up to 40 stations (8 stations x 5 groups) manually.

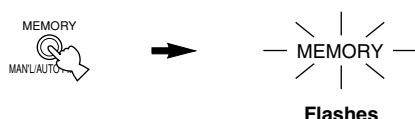


### 1 Tune in to a station.

See page 31 for tuning instructions.

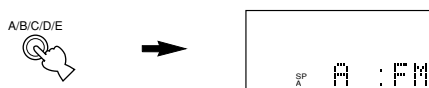
### 2 Press MEMORY (MAN'L/AUTO FM).

The "MEMORY" indicator flashes for about 5 seconds.



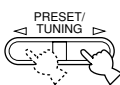
### 3 Press A/B/C/D/E repeatedly to select a preset station group (A to E) while the "MEMORY" indicator is flashing.

The group letter appears and make sure that the colon (:) appears on the front panel display next to the band indication.



### 4 Press PRESET/TUNING </> to select a preset station number (1 to 8) while the "MEMORY" indicator is flashing.

Press > to select a higher preset station number. Press < to select a lower preset station number.



### 5 Press MEMORY (MAN'L/AUTO FM) while the "MEMORY" indicator is flashing.

The station band and frequency appear on the front panel display with the preset group and number you have selected.



Shows the displayed station has been stored as A1.

### 6 Repeat steps 1 to 5 to store other stations.

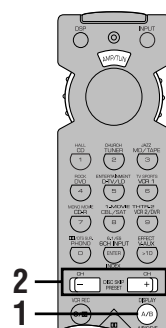
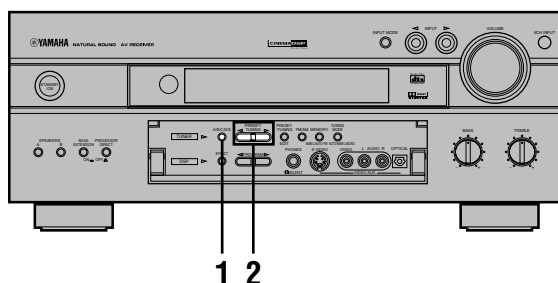
#### Notes

- Any stored station data existing under a preset number is cleared when you store a new station under that preset number.
- The reception mode (stereo or monaural) is stored along with the station frequency.

## Tuning in to a Preset Station

You can tune any desired station simply by selecting the preset station number under which it was stored.

You can also tune a preset station with the remote control. Set the selector dial to the AMP/TUN position and press TUNER to select TUNER as the input source.



# 1 Press A/B/C/D/E to select the preset station group.

The preset group letter appears on the front panel display and changes each time you press A/B/C/D/E.



Front panel

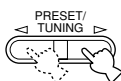
or



Remote control

# 2 Press PRESET/TUNING </> (or PRESET +/-) to select a preset station number (1 to 8).

The preset group and number appear on the front panel display along with the station band, frequency and the "TUNED" indicator lights up.



Front panel

or



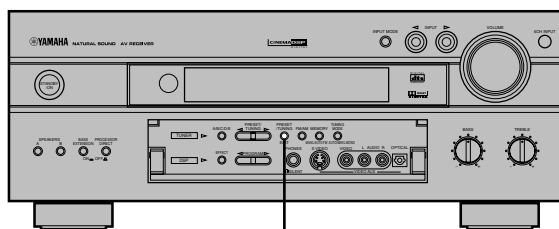
Remote control



- You can select the preset station number with the numeric buttons (1 to 8) on the remote control if code number "0023" has been set up in the AMP/TUN (or DSP/TUN) position.

## Exchanging Preset Stations

You can exchange the assignment of two preset stations with each other. The example below describes the procedure for exchanging preset station "E1" with "A5".



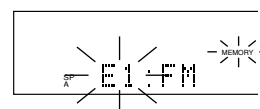
2,4

# 1 Tune in to preset station "E1".

See "Tuning in to a Preset Station" on page 33.

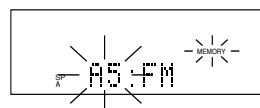
# 2 Press and hold PRESET/TUNING (EDIT) for more than 3 seconds.

"E1" and the "MEMORY" indicator flash on the front panel display.



# 3 Tune in to preset station "A5" by using the buttons on the front panel.

"A5" and the "MEMORY" indicator flash on the front panel display.



# 4 Press PRESET/TUNING (EDIT) again.

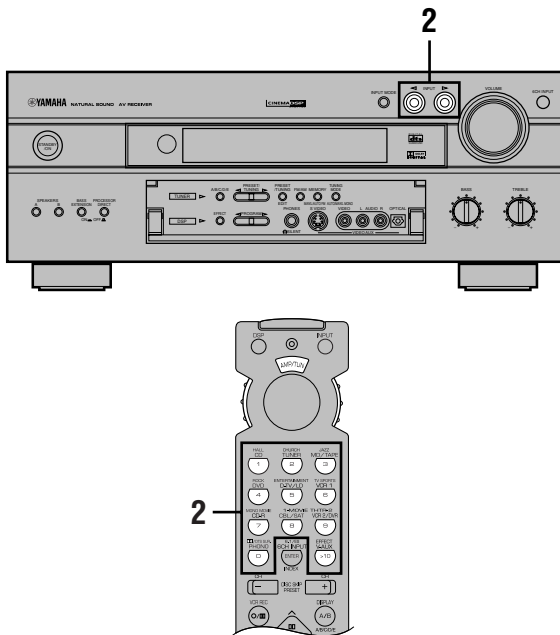
The stations stored at the two preset assignments are exchanged.



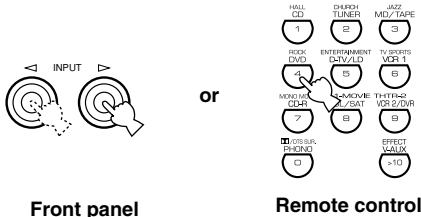
Shows the exchange of stations has been completed.

# BASIC RECORDING

Recording adjustments and other operations are performed from the recording components. Refer to the operation instructions for these components.



- 1** Turn on the power to the unit and all connected component.
- 2** Select the source component you want to record from.



Front panel

Remote control

- 3** Start playback (or select a broadcast station) on the source component.
- 4** Start recording on the recording component.

## Notes

- Do a test recording before you start an actual recording.
- When this unit is set in the standby mode, you cannot record between other components connected to this unit.
- The setting of BASS, TREBLE, BASS EXTENSION, VOLUME, "3 L/R BALANCE" on the SET MENU and DSP programs does not affect the recorded material.
- A source connected to the 6CH INPUT jacks of this unit cannot be recorded.
- S-video and composite video signals pass independently through this unit's video circuits. Therefore, when recording or dubbing video signals, if your video source component is connected to provide only an S-video (or only a composite video) signal, you can record only an S-video (or only a composite video) signal by your VCR.
- A given input source is not output on the same REC OUT channel. (For example, the signal input from VCR 1 IN is not output on VCR 1 OUT.)
- Check the copyright laws in your country to record from records, CDs, radio, etc. Recording of copyrighted material may infringe copyright laws.

If you playback a video source that uses scrambled or encoded signals to prevent it from being dubbed, the picture itself may be disturbed due to those signals.

## Special considerations when recording DTS software

The DTS signal is a digital bitstream. Attempting to digitally record the DTS bitstream will result in noise being recorded. Therefore, if you want to use this unit to record sources that have DTS signals recorded on them, the following considerations and adjustments need to be made.

### For LDs, DVDs and CDs encoded with DTS

Only 2-channel analog audio signals may be recorded as follows:

- LDs
  - Set your LD player's left and right outputs to the analog soundtrack.
- DVDs
  - Use the disc menu to set the DVD player's mixed 2-channel left and right audio outputs to the PCM or Dolby Digital soundtrack.
- CDs
  - The DTS signal recorded on CDs can only be output as a digital bitstream, and therefore cannot be recorded.